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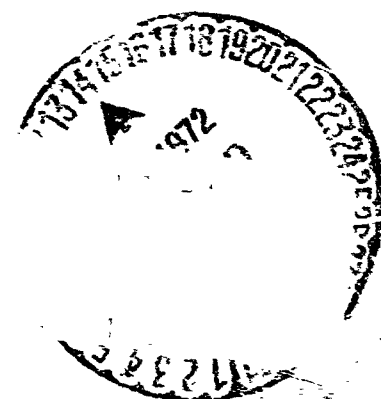
MDC G2827

# RESULTS OF POST-TEST PSYCHOLOGICAL EXAMINATIONS OF THE CREWMEN FROM THE 90-DAY MANNED TEST OF AN ADVANCED REGENERATIVE LIFE SUPPORT SYSTEM

FEBRUARY 1972

**NASA**

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Prepared Under Contract No. NAS1-10717

By

Biotechnology and Power Department  
McDonnell Douglas Astronautics Company  
Huntington Beach, California

For  
LANGLEY RESEARCH CENTER  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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OF THE CREWMEN FROM THE 90-DAY MANNED TEST  
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CONTENTS

	PAGE
SUMMARY	1
INTRODUCTION	2
DR. MACFARLANE'S SUBMITTAL	3
INTRODUCTION	3
SCORING	3
RESULTS	4
COMPARISON OF CHANGES FOR CREWMEN A, B, AND D	8
SUMMARY COMMENTS	9
APPENDIX OBJECTIVE SCORES OF THE RORSCHACH ADMINISTRATION	11
CREWMAN A - TEST 1	12
CREWMAN A - TEST 2	13
CREWMAN B - TEST 1	14
CREWMAN B - TEST 2	15
CREWMAN C - TEST 1	16
CREWMAN D - TEST 1	17
CREWMAN D - TEST 2	18

## SUMMARY

The following material presents the results of two temporally remote administrations of an identical projective personality assessment device (Rorschach Inkblot) using crew members aboard the 90-day test. The first administration took place during preselection crew psychodiagnostic testing in the period extending from mid-December 1969 through mid-January 1970. Second administration took place in late May and early June, 1971, approximately one year after termination of the test. During the 90-day program duration, the subjects participated in the crew training program, were selected and served as onboard crew during the 90-day test, and emerged from the confinement amid considerable public interest in the feat which occasioned contact with various segments of the mass media. All but one immediately resumed their graduate studies. The one exception, crewman B, temporarily discontinued his studies for a protracted travel vacation. He then reportedly changed his field of study and continued his education at another institution. Crewman A was killed in an avalanche while mountaineering in Alaska during the Summer of 1971. He had previously reestablished himself as a graduate student and fully expected to resume his education.

The testing reported herein was undertaken at the request of NASA-LaRC in order to determine the character and extent of change (if any) in basic personality dynamics accompanying or caused by participation in the 90-day test program.

Results indicate that significant personality changes occurred in three of the four onboard crew members. A detailed discussion of the results is provided in Section, "Rorschach Changes on the 90-Day Confinement Mission", Dr. MacFarlane's submittal in this report. Objective scores which served as the basis for the discussion are presented in the Appendix.

## INTRODUCTION

The test device selected was the Rorschach Inkblot Test, originally described by Hermann Rorschach in 1921. This device is probably the most demanding, intricate and controversial psychological test method available to clinical psychology and psychiatry. Comments as to its effectiveness as a measurement technique range from invalid, cultist, and essentially useless in diagnosis and clinical prediction to efficient, sensitive, comprehensive, and of significant value in the assessment and prediction of basic personality characteristics and manifest behavior. Despite this disparity in opinion as to the worth of the test, it has become increasingly popular as a psychodiagnostic technique ever since its introduction into the United States in 1937. It is currently believed by many psychological practitioners to be the best test available for the characterization of human individuality; normal or abnormal.

A methodological principle in the use of the Rorschach Inkblot Test, to which a majority of investigators subscribe, is that the test must be administered, scored, and interpreted by an expert in its use. Also, administration should preferably be undertaken on an individual-to-individual basis after a suitable period of preparation devoted to establishing rapport between the administrator of the test and the subject. For the present study, both of these requirements were satisfactorily accomplished. Dr. T. MacFarlane, consultant clinical psychologist, formerly Professor of Psychology at California State College at Long Beach and now Dean of Students at Humboldt State College, Arcata, California, administered the test individually to each subject, scored all responses and provided a narrative report of the results. Dr. MacFarlane's experience with the Rorschach Technique extends over a period of twenty years.

Dr. MacFarlane's narrative report and objective scoring results are presented verbatim. MDAC annotations at appropriate points are provided to increase the clarity of results to a lay audience. Complete understanding of the remarks are expected to be communicated only to persons cognizant of Rorschach Theory, Scoring Techniques, and Analytic Methodology.

## DR. MACFARLANE'S SUBMITTAL

### - Rorschach Changes on the 90-Day Confinement Mission -

#### Introduction

In the assessment of personality change over a 90-day confinement mission, considerations revolve about what part of the personality changes and what part is stable. There is some research evidence to indicate that the Rorschach is thoroughly stable over the short term range but over the long term, change is expected based on the changing life experience. In this case, the experience in the 90-day test situation may have had some effect.\* In other Rorschach studies of repeat reliability, however, there are some fairly consistent stabilities over a period as long as nine or ten months. In the present instance the retesting occurred after a nine month period.

Another question is: What constitutes significant change? Because of the few subjects in the present study, the assessment of such change must necessarily be by the clinical judgment of the investigator involved as to whether a change appears to be large enough to be significant. In general, change was considered significant when several increased or decreased responses occurred. In some instances however, the appearance of a particular determinant in the Rorschach record might have been quite significant and was noted.

#### Scoring

The first and second administrations of the Rorschach technique were scored independently by the same test administrator and were then scanned for obvious scoring errors. In the several hundred responses reviewed, there were no more than five such errors which were corrected according to

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\*One cannot, however, unequivocally attribute measured personality changes to either the episode of confinement or to an alteration in life style attendant upon participation in the entire experience of pre, per, and post-test involvement with the aerospace community.

accepted scoring principles. The scoring system employed was that commonly known as the Klopfer method which was originally described in Klopfer, B. and Kelley, D. M., The Rorschach Technique, Yonkers: World Book Co., 1942.

### Results

#### Crewman A:

For Crewman A, on the second administration of the test, human movement responses increased and tension indicators decreased indicating that inner resources were more available to him and less fraught with tension at the time of testing. There was also some change toward improved emotional control in response to stimulation of challenge from others. Although there was a slight increase in the number of responses, many of the determinants\* remained the same. This would include the percentage of animals seen in responses which is indicative of the range of interest. However, there was some emphasis on the whole animal or human versus the perception of the part thus it would indicate somewhat more security on the part of Crewman A and a less critical approach at the time of the final testing. Perhaps most significant was a swing in the experience balance toward the introvertive side; away from a previous balanced experience type. Within the introvertive situation there was a better balance between human and animal movement responses tending to indicate that there was better inner control with much tension permitting better utilization of inner resources. In general, other determinants indicated more and better control of the more basic anxieties. In addition there were better controlled responses to external challenge.

On the more intellectual side there was perhaps an increase in organizational ability and tendency, accompanied perhaps by more striving for achievement.

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\*Determinants relate to the various aspects of each inkblot which are perceived and reported by the subject. Examples include mention by the subject of color, shading, and movement.



Perhaps Crewman A was motivated by the experience. His intellectual manner of approach was more balanced, perhaps more innovative and showed less attention to small detail. His form level increased, indicative of better intellectual perception. Rather interestingly this occurred mostly in the non-colored cards which perhaps indicated his comfort in the handling of anxiety.

Crewman B:

Similar to Crewman A, there was some increase in the inner resources while the instinctual drives remained about the same. Although there were indications that basic anxieties did decrease, there appeared to be a considerable increase in felt inner tension. This increase in personal tension may have been related to the experience on the mission that in some respects was not too satisfying to Crewman B. He may have reacted to this unsatisfactory experience by the rather intellectual approach of seizing on the formal aspects of the Rorschach experience. For example, the F percent increased from 26% to 59%. It is interesting that form percentage changed but the other determinants were reasonably stable. At the same time there may have been less affectional need expressed and perhaps also less dependency need on the part of Crewman B. The experience seems to have served to produce more independence and less inclination to blend with others. Reaction time to the shaded cards was twice as long on the second administration indicating that there may have been some concern in this affectional area. At the same time there was much more emphasis on detail and perhaps a more critical perception of things. The range of interest appears to be considerably decreased. All this might well be accompanied by a stronger need for achievement. His drive to compete with, or surpass, others might be stronger as a result of the experience. In general one might say there was some swing from an affectional-relational approach to others, to a response more along the lines of emotional challenge with perhaps less control over the emotional interactions involved.

Crewman C\*:

Crewman C expressed quite a good deal of discomfort about the first administration, wondering if he had performed adequately and what the test would reveal. Considerable intellectual skepticism was also present on the first administration and it is not surprising that Crewman C refused to take a second test. He tended to distrust testing in general, both the quantitative and the projective tests and it is not surprising that he was unwilling to take the second projective test.\*\* In terms of his motivation for the entire project the interview revealed that his top priority was for the remuneration involved in the project and he was not as emotionally involved in the task as the other three crewmen were.

Crewman C however did produce a fairly adequate Rorschach with some anxiety and tension present. He was more introverted than the other crew members on the first test. It is interesting that Crewman A swung to Crewman C's position on the first test as far as introversion is concerned. Crewman C's animal percentage was quite high showing some disturbance and/or the restriction of his range of interest. He tended, however, not to be critical of others and this was certainly borne out on the mission where he talked about difficulties in a quite reluctant way. He showed good human movement production thus indicative of considerable inner resources and his striving for achievement was backed up by those inner resources. There appears to be good balance within, showing inner spontaneity such that his drives are coordinated with his life goals and purposes. He shows much less external spontaneity and response to the emotional challenge from others. He may even have rather tight control externally. Internally his insight and affectional needs may be suppressed by anxiety. In terms of his intellectual approach, it does not appear that he has the same organizing ability as the

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\*Crewman C refused to participate in a second administration of the test. Results are based upon the preselection administration and other first-hand experience by the consultant with the subject prior to and after the confinement episode.

\*\*He also displayed considerable resistance to retest with the "quantitative", or objective tests of the preselection battery. He finally complied with numerous requests by mailing his completed tests to MDAC.

other crewmen in that he perhaps cannot see the experience as a whole as readily as they. He may in fact tend to focus on rather small or rare details and not grasp the overall picture.

Crewman D:

Where Crewman D's original protocol is somewhat restricted and hence consistent with his number 4\* rating, perhaps his was the most favorable change of all. His human movement production was greatly increased, indicative of the development of inner resources. This may fit with some of the reading and studying and evaluation which he reported that he did in the debriefing\*\* interviews. His basic anxiety appears to be much reduced. However, there may be some mild situational inner tension that was not apparent in the Rorschach before the mission. The appearance of a vista response might indicate that there was some attempt to understand the problems that appeared through utilization of intellectual insight. There was some increase in form responses, probably due to extra effort and more familiarity with the blocks. There was some increase in the affectional response to others and the needs for them, and, judging from the debriefing interviews, affectional needs were frustrated in this particular mission. However, there was better and more perceptual discrimination of emotional challenge from others. There was much more emotional responsiveness to the external environment. In general, the mission appears to have had a good effect on the emotional determinants of experience for Crewman D. If the change was due to the mission itself and not due to external events, as indeed might be the case, it would appear that Crewman D made some significant change in emotional development and the availability of emotional response to him. His responses increased and his responses to both the colored

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\*Refers to a rating system developed to aid in the selection of onboard crewmen from the available applicant pool. Number 1 indicated predicted high suitability while Number 3 indicated least suitability. Ratings were solicited from a number of sources and were based upon numerous criteria. The number 4 referred to was the emotional suitability rating supplied by the consultant psychologist prior to the test.

\*\*Interviews conducted immediately upon the termination of the 90-day test.

and non-colored cards was reduced. It appears that perhaps he has developed a habit of more immediate response as a result of the mission. In addition, the animal percent was reduced, indicating a broadening of the range of interest and there were also indications of his becoming less critical. Like Crewman A, Crewman D also displayed a rather definite swing toward the introvertive side of the experience balance. The many additional color responses would modify that swing somewhat. There was also a secondary tendency toward ambiversion\* so that it may be that an integrated overall result may be obtained. Crewman D's drive for achievement is now much better supported by inner resources and imaginative ideas. There is an improved balance in inner spontaneity. The prior impulsive tendencies seem better in coordination with life goals and value systems. The balance between affectional needs and emotional response to others would indicate that affectional needs might take precedence over the ability to make the external emotional response. Much better external emotional control is displayed, however.

In terms of his intellectual approach, he appeared to emphasize more major details than previously, thus indicating a more differentiated and perhaps a more practical approach to perception. His form level and quality also increased considerably on the second Rorschach administration. This increase was mostly on the chromatic, or color, cards indicating that the potential for better external emotional control is there.

#### Comparison of Changes for Crewmen A, B, and D

Rather interestingly, only one determinate was about the same for all three. That was the animal movement response which is indicative of the instinctual drive level.\*\* Perhaps that consistency is to be expected, and because it is so basic, would not change in this particular study. The other consistency for all three was that the number of responses increased on the second

\*Ambiversion refers to personality well balanced on the continuum between introversion (interest in the self) and extroversion (interest in others).

\*\*Instinctual drive levels refer to basic human motivations such as sexuality and nutritional sustenance.

administration for all, and one might expect that additional responses would be given as increased comfort with the test situation developed. The vista responses are the same for Crewmen A and B but one additional response appeared for Crewman D on the second administration indicative of a need for introspective insight. The form percentage was the same for Crewman A and D but not B. B's form percentage increased very rapidly as indicated above. The texture responses, indicative of emotional need, were somewhat the same for A and B while D's responses increased. The introvertive swing was more marked for Crewman A and D but B's experience balance remained about the same. There was also more emotional control and responsiveness for Crewmen A and D while B remained about the same. Crewmen A and B showed more whole responses, whereas D did not. It has already been noted that there was a great deal of change in inner resources for D whereas there was only slight improvement for A and B.

Crewman A, and his changes, pairs (correlates) with Crewman D with some of the more important variables. Crewmen A and B changed similarly on some other variables. It is interesting that Crewmen B and D did not change together. This is interesting in light of some events during the mission.\* It is further interesting in light of the inverse factor analysis performed on the quantitative data which has not yet been reported, but this factor analysis indicates that A and D have something in common that the other crewmen do not.\*\*

#### Summary Comments

On an overall basis one might say that there is very little change shared by all crewmen except perhaps an increase in the number of responses. The individuals have changed, but perhaps in different directions. It does appear that Crewmen A and D did, in general, benefit from the experience in rather

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\*The events alluded to were some demonstrations of interpersonal hostility between Crewmen B & D.

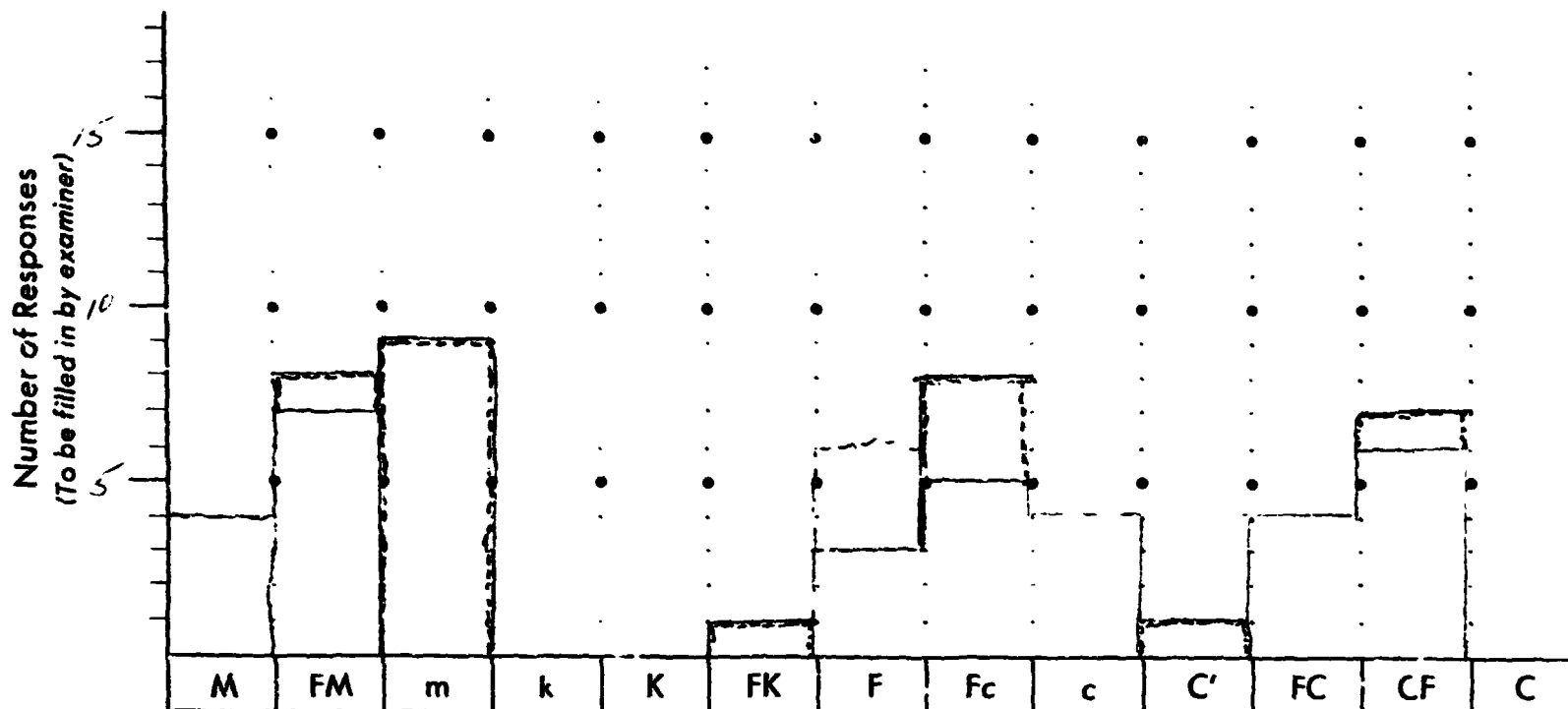
\*\*The analysis was an undertaking on the part of the consultant; results of which are preliminary and thus far undocumented.

important developmental ways. Taken as a whole, Crewman D did not appear to change in as many beneficial ways and, in fact, may have developed a more abstract intellectual approach as a result of his experiences. It is difficult to estimate what Crewman C would have done on the second Rorschach information. On the debriefing interview it did not appear that the experience was a very beneficial one for him. It would have been interesting to see if this was corroborated through retest by a less adequate Rorschach performance.

In some ways the analysis of the projective data from the Rorschach technique appears to be a more valid comparison than that from the quantitative data. It may be however that each analysis contributes something to the understanding of the changes that took place. In general, I think these two levels of analysis can be and are coordinated. However, there may be some points of disagreement in the data (objective vs. projective) which might be more apparent than real and might yield to further analysis. Such an analysis however is not part of this report but perhaps can be prepared at a later date when both the quantitative and projective results can be studied at length.

## APPENDIX

### OBJECTIVE SCORES OF THE RORSCHACH ADMINISTRATION



### I. BASIC RELATIONSHIPS: Main Responses Only

Total Responses  $R$  32

Total Time  $T$  \_\_\_\_\_ sec.

Average Time per Response  $1/R$  \_\_\_\_\_ sec.

Average Reaction Time:

Achromatic Cards (I, IV, V, VI, VII) 1.4 sec.

Chromatic Cards (II, III, VIII, IX, X) 2.0 sec.

$\frac{F}{R}$  10 %

$\frac{FK + F + Fc}{R}$  25 %

$\frac{A + Ad}{R}$  38 A%

$(H + A) : (Hd + Ad)$  11:6

Popular Responses  $P$  \_\_\_\_\_

Original Responses  $O$  \_\_\_\_\_

$\frac{FC + 2CF + 3C}{2}$  5 sum C

$M : \text{sum } C$  4:5

$(FM + m) : (Fc + c + C')$  7:9

$\frac{\text{Responses to Cards VIII + IX + X}}{R}$  44 %

$W : M$  13:4

### II. SUPPLEMENTARY RELATIONSHIPS: Main + $\frac{1}{2}$ Add.

$M : FM$  4:7.5

$M : (FM + m)$  4:12

$\frac{FK + Fc}{F}$  1.6

$(Fc + cF + c + C' + C'F + FC') : (FC + CF + C)$  11:10.5

$(FK + Fc + Fk) : (K + KF + k + kF + c + cF)$  7:4

$FC : (CF + C)$  4:5.5

### III. MANNER OF APPROACH

	Main Responses			No. Add. Scores
	No.	Actual %	Expect. %	
W	13	40	20-30	
D	16	50	45-55	
d	3	10	5-15	
Dd+S	0	0	< 10	

### IV. ESTIMATE OF INTELLECTUAL LEVEL

Capacity \_\_\_\_\_

Efficiency \_\_\_\_\_

### V. SUCCESSION

Rigid' \_\_\_\_\_

Orderly \_\_\_\_\_

Loose \_\_\_\_\_

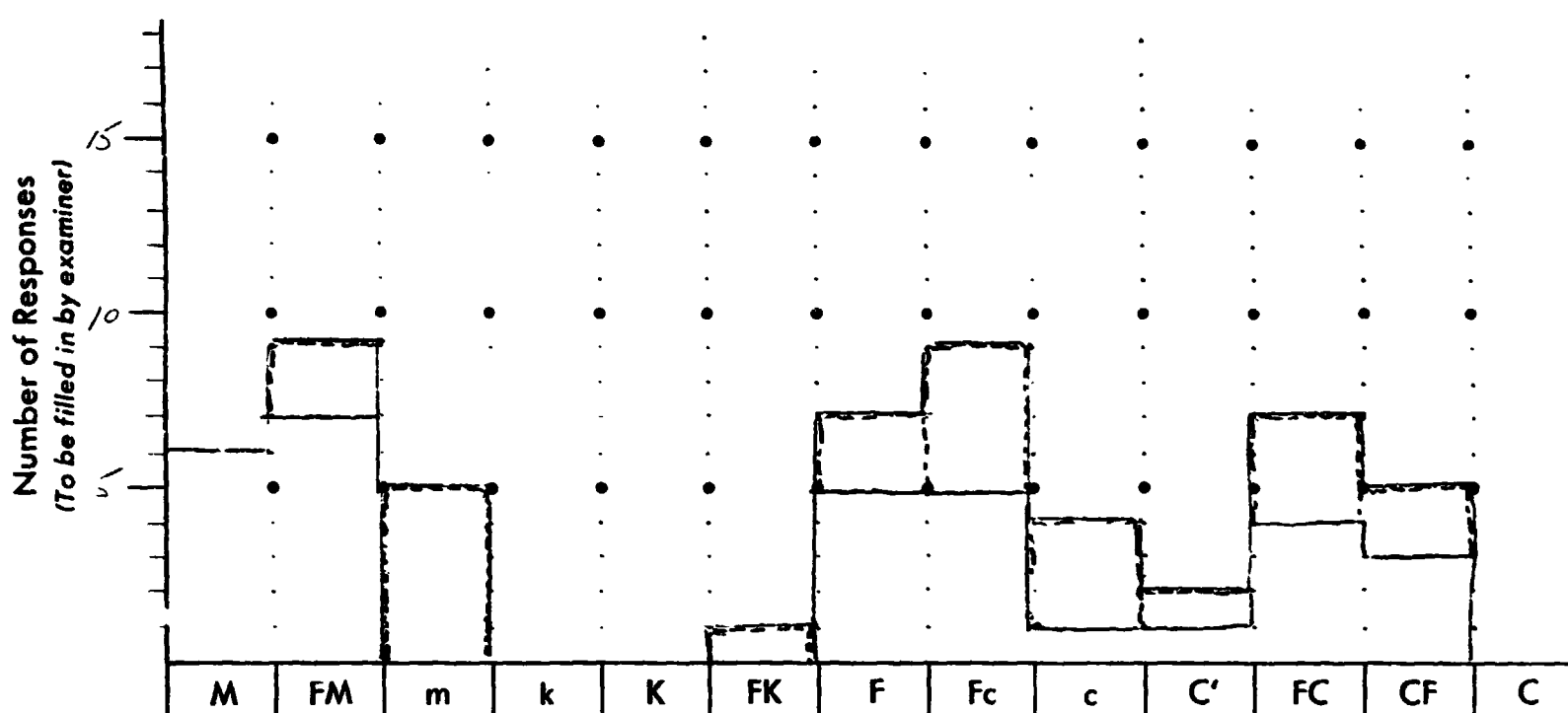
Confused \_\_\_\_\_

### VI. FORM LEVEL SUMMARY

Average Unweighted FLR 2.8 2.5 3.0

Average Weighted FLR 4.7 4.4 5.6





### I. BASIC RELATIONSHIPS: Main Responses Only

Total Responses  $R$  43

Total Time  $T$  \_\_\_\_\_ sec.

Average Time per Response  $T/R$  \_\_\_\_\_ sec.

Average Reaction Time:

Achromatic Cards (I, IV, V, VI, VII) 3 sec.

Chromatic Cards (II, III, VIII, IX, X) 2.4 sec.

$\frac{F}{R}$  15 F%

$\frac{FK + F + Fc}{R}$  33 %

$\frac{A + Ad}{R}$  36 A%

$(H + A) : (Hd + Ad)$  16:3

Popular Responses  $P$  \_\_\_\_\_

Original Responses  $O$  \_\_\_\_\_

$\frac{FC + 2CF + 3C}{2}$  2.5 sum C

$M : \text{sum C}$  6:2.5

$(FM + m) : (Fc + c + C')$  7:7

$\frac{\text{Responses to Cards VIII + IX + X}}{R}$  33 %

$W : M$  19:6

### II. SUPPLEMENTARY RELATIONSHIPS: Main + $\frac{1}{2}$ Add.

$M : FM$  6:9

$M : (FM + m)$  6:12.5

$\frac{FK + Fc}{F}$  1.25

$(Fc + cF + c + C' + C'F + FC') : (FC + CF + C)$  11:9.5

$(FK + Fc + Fk) : (K + KF + k + kF + c + cF)$  7.5:2.5

$FC : (CF + C)$  5.5:4

### III. MANNER OF APPROACH

	Main Responses			No. Add. Scores
	No.	Actual %	Expect. %	
W	19	58	20-30	
D	11	33	45-55	
d	1	3%	5-15	
Dd+S	2	6%	< 10	

### IV. ESTIMATE OF INTELLECTUAL LEVEL

Capacity \_\_\_\_\_

Efficiency \_\_\_\_\_

### V. SUCCESSION

Rigid' \_\_\_\_\_

Orderly \_\_\_\_\_

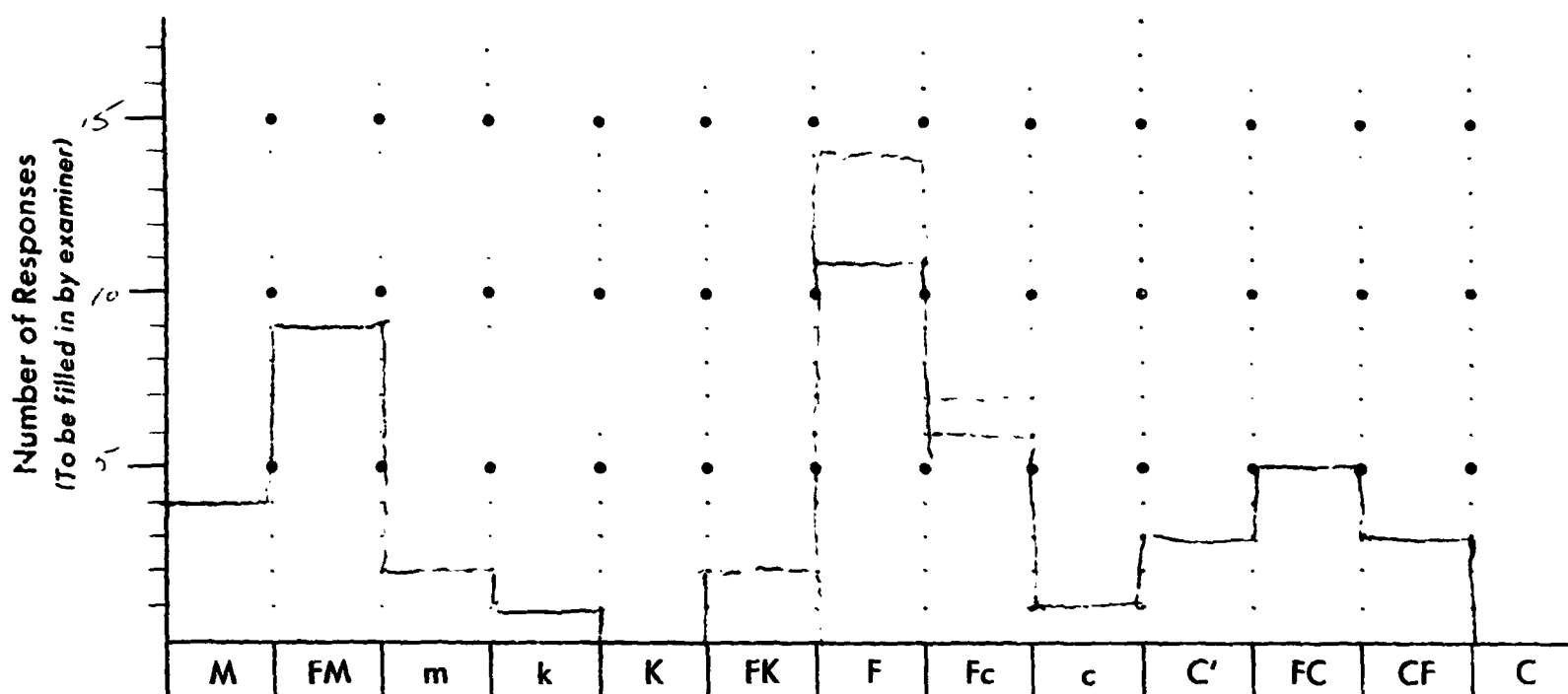
Loose \_\_\_\_\_

Confused \_\_\_\_\_

### VI. FORM LEVEL SUMMARY

Average Unweighted FLR 3.1 29 31

Average Weighted FLR 5.7 5.1 6.3



### I. BASIC RELATIONSHIPS: Main Responses Only

Total Responses

R 42

Total Time

T \_\_\_\_\_ sec.

Average Time per Response

T/R \_\_\_\_\_ sec.

Average Reaction Time:

Achromatic Cards (I, IV, V, VI, VII)

42 sec.

Chromatic Cards (II, III, VIII, IX, X)

74 sec.

$\frac{F}{R}$

56 F%

$\frac{FK + F + Fc}{R}$

40 %

$\frac{A + Ad}{R}$

40 A%

(H + A) : (Hd + Ad)

21:6

Popular Responses

P \_\_\_\_\_

Original Responses

O \_\_\_\_\_

$\frac{FC + 2CF + 3C}{2}$

sum C 5.5

M : sum C

4:5.5

(FM + m) : (Fc + c + C')

11:10

$\frac{\text{Responses to Cards VIII + IX + X}}{R}$

48 %

W : M

13:4

### II. SUPPLEMENTARY RELATIONSHIPS: Main : $\frac{1}{2}$ Add.

M : FM

4:7

M : (FM + m)

4:11

$\frac{FK + Fc}{F}$

2:2

(Fc + cF + c + C' + C'F + FC') : (FC + CF + C)

10:8

(FK + Fc + Fk) : (K + KF + k + kF + c + cF)

7:6

FC : (CF + C)

7:3

### III. MANNER OF APPROACH

	Main Responses			No. Add. Scores
	No.	Actual %	Expect. %	
W	<u>13</u>	<u>31</u>	20-30	
D	<u>24</u>	<u>57</u>	45-55	
d	<u>3</u>	<u>7</u>	5-15	
Dd+S	<u>2</u>	<u>5</u>	< 10	

### IV. ESTIMATE OF INTELLECTUAL LEVEL

Capacity \_\_\_\_\_

Efficiency \_\_\_\_\_

### V. SUCCESSION

Rigid \_\_\_\_\_

Orderly \_\_\_\_\_

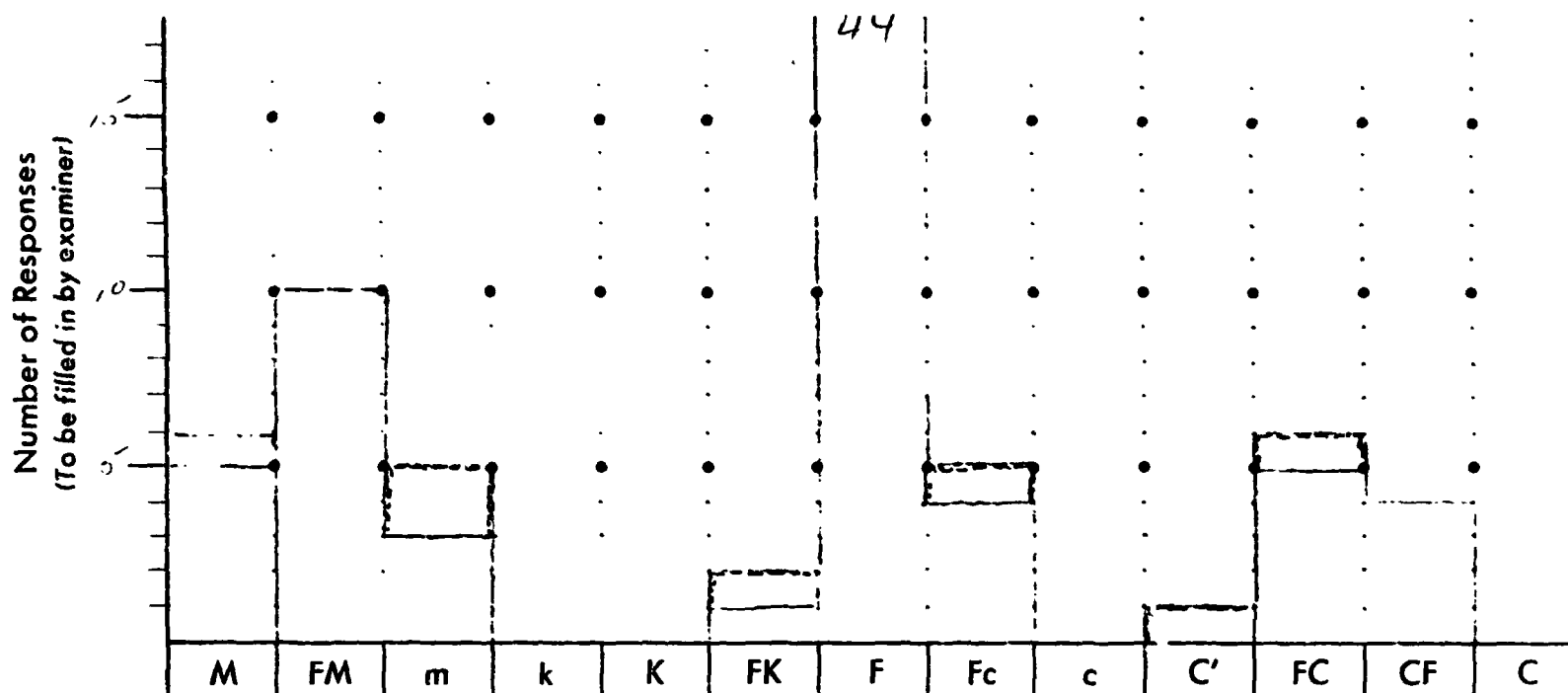
Loose \_\_\_\_\_

Confused \_\_\_\_\_

### VI. FORM LEVEL SUMMARY

Average Unweighted FLR 2.3 4.3 5.3

Average Weighted FLR 3.8 3.5 3.5



# I. BASIC RELATIONSHIPS: Main Responses Only

Total Responses  $R$  75

Total Time  $T$  \_\_\_\_\_ sec.

Average Time per Response  $T/R$  \_\_\_\_\_ sec.

Average Reaction Time:

Achromatic Cards (I, IV, V, VI, VII) 9 sec.

Chromatic Cards (II, III, VIII, IX, X) 5.6 sec.

$\frac{F}{R}$  59 F%

$\frac{FK + F + Fc}{R}$  66 %

$\frac{A + Ad}{R}$  57 A%

$(H + A) : (Hd + Ad)$  37:20

Popular Responses  $P$  \_\_\_\_\_

Original Responses  $O$  \_\_\_\_\_

$\frac{FC + 2CF + 3C}{2}$  6.5 sum C

$M : \text{sum } C$  5:6.5

$(FM + m) : (Fc + c + C')$  13:4

$\frac{\text{Responses to Cards VIII + IX + X}}{R}$  60 %

$W : M$  24:5

# II. SUPPLEMENTARY RELATIONSHIPS: Main + $\frac{1}{2}$ Add.

$M : FM$  55:16

$M : (FM + m)$  52:14

$\frac{FK + Fc}{F}$  14:10

$(Fc + cF + c + C' + C'F + FC') : (FC + CF + C)$  5:9.5

$(FK + Fc + Fk) : (K + KF + k + kF + c + cF)$  6:6

$FC : (CF + C)$  55:4

# III. MANNER OF APPROACH

	Main Responses			No. Add. Scores
	No.	Actual %	Expect. %	
W	<u>25</u>	<u>33</u>	20-30	
D	<u>32</u>	<u>43</u>	45-55	
d	<u>6</u>	<u>8</u>	5-15	
Dd + S	<u>12</u>	<u>16</u>	< 10	

# IV. ESTIMATE OF INTELLECTUAL LEVEL

Capacity \_\_\_\_\_

Efficiency \_\_\_\_\_

# V. SUCCESSION

Rigid \_\_\_\_\_

Orderly \_\_\_\_\_

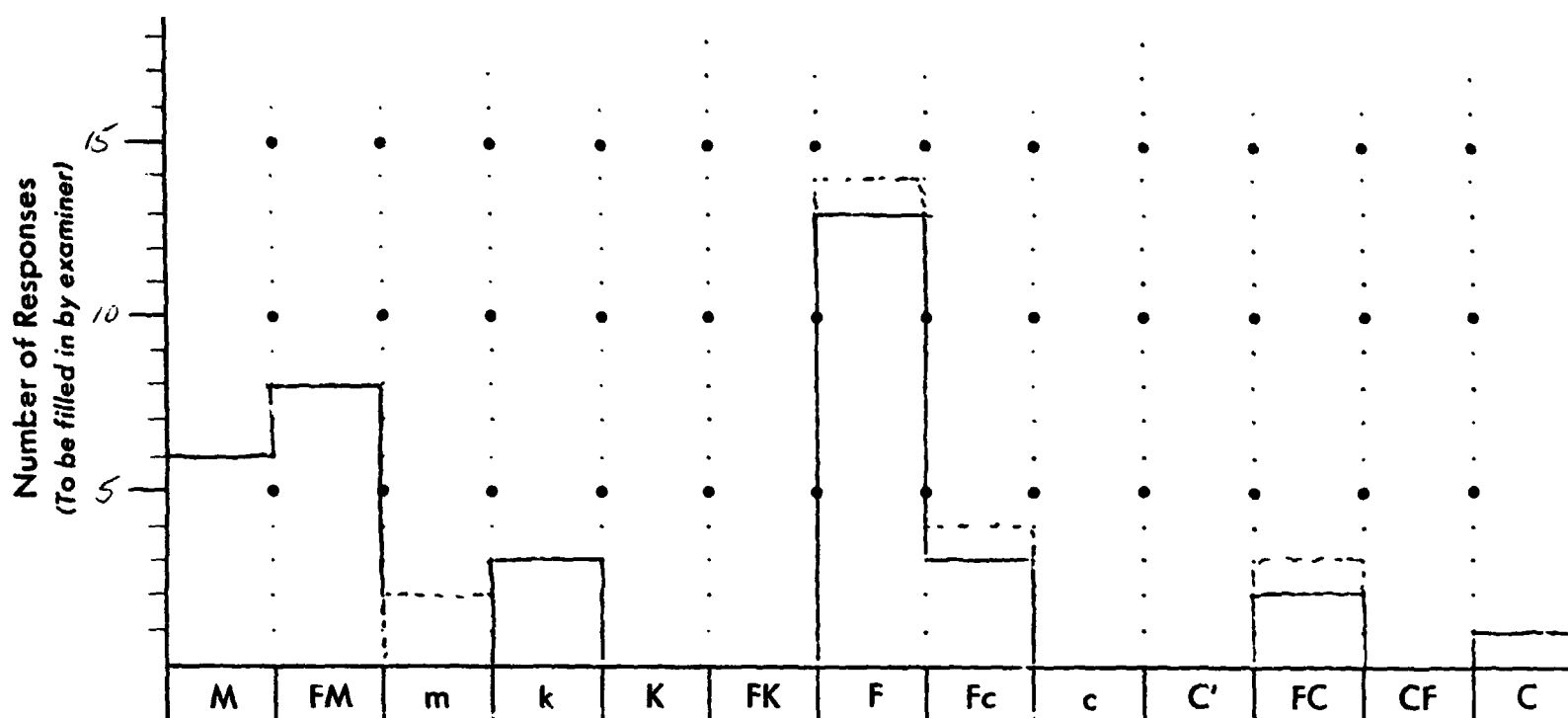
Loose \_\_\_\_\_

Confused \_\_\_\_\_

# VI. FORM LEVEL SUMMARY

Average Unweighted FLR 2.3 24 2.3

Average Weighted FLR 3.7 39 3.5



### I. BASIC RELATIONSHIPS: Main Responses Only

Total Responses R 36

Total Time T \_\_\_\_\_ sec.

Average Time per Response T/R \_\_\_\_\_ sec.

Average Reaction Time:

Achromatic Cards (I, IV, V, VI, VII) 11 sec.

Chromatic Cards (II, III, VIII, IX, X) 12 sec.

$\frac{F}{R}$  .36 F%

$\frac{FK + F + Fc}{R}$  44 %

$\frac{A + Ad}{R}$  58 A%

(H + A) : (Hd + Ad) 29:2

Popular Responses P \_\_\_\_\_

Original Responses O \_\_\_\_\_

$\frac{FC + 2CF + 3C}{2}$  sum C 2.5

M : sum C 6:2.5

(FM + m) : (Fc + c + C') 8:3

$\frac{\text{Responses to Cards VIII + IX + X}}{R}$  42 %

W : M 5:6

### II. SUPPLEMENTARY RELATIONSHIPS: Main + $\frac{1}{2}$ Add.

M : FM 6:8

M : (FM + m) 6:9

$\frac{FK + Fc}{F}$  10:6

(Fc + cF + c + C' + C'F + FC') : (FC + CF + C) 35:35

(FK + Fc + Fk) : (K + KF + k + kF + c + cF) 35:3

FC : (CF + C) 25:1

### III. MANNER OF APPROACH

	Main Responses			No. Add. Scores
	No.	Actual %	Expect. %	
W	5	14	20-30	
D	25	69	45-55	
d	2	5.5	5-15	
Dd + S	4	11	< 10	

### IV. ESTIMATE OF INTELLECTUAL LEVEL

Capacity \_\_\_\_\_

Efficiency \_\_\_\_\_

### V. SUCCESSION

Rigid \_\_\_\_\_

Orderly \_\_\_\_\_

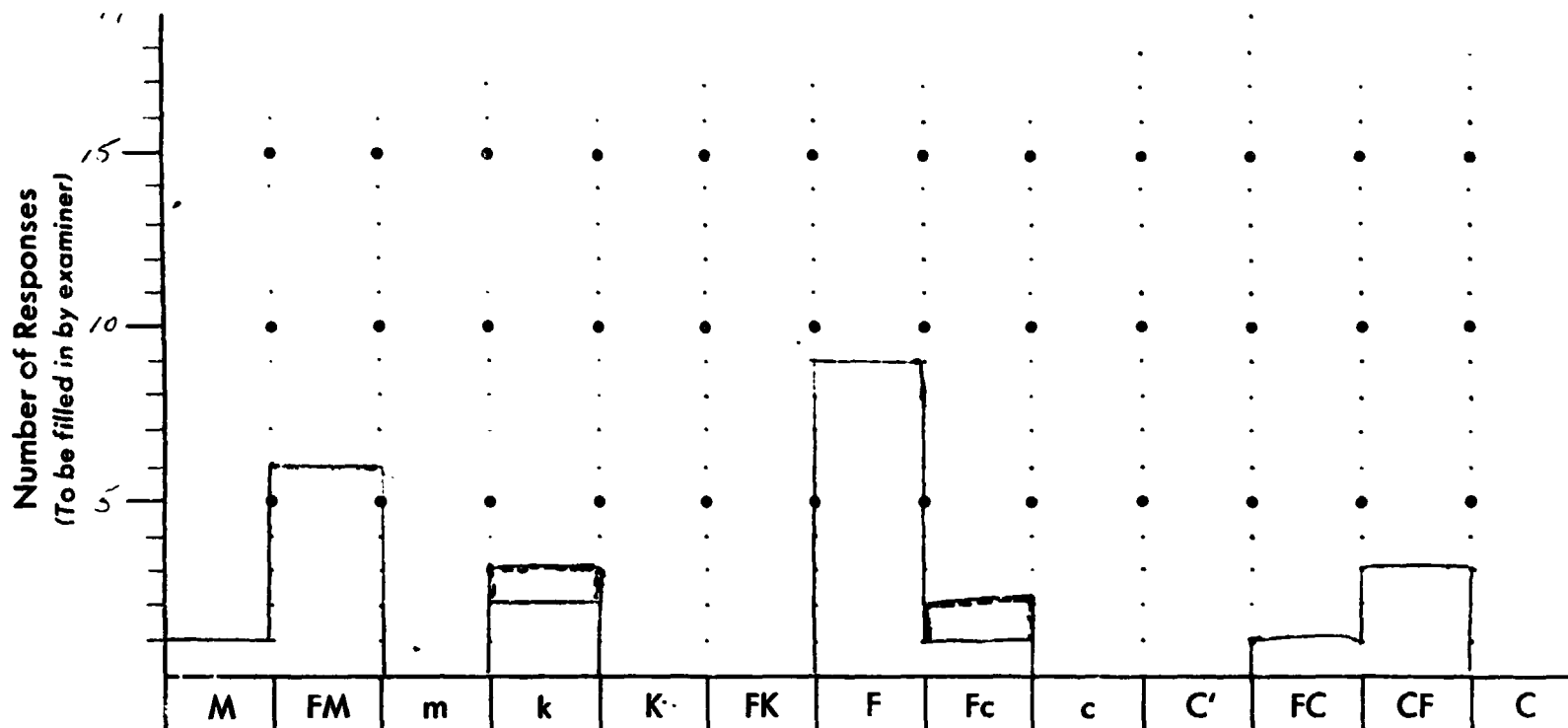
Loose \_\_\_\_\_

Confused \_\_\_\_\_

### VI. FORM LEVEL SUMMARY

Average Unweighted FLR 2.5 2.5 3

Average Weighted FLR 4.5 4.5 4



#### I. BASIC RELATIONSHIPS: Main Responses Only

Total Responses R 23

Total Time T \_\_\_\_\_ sec.

Average Time per Response T/R \_\_\_\_\_ sec.

Average Reaction Time:

Achromatic Cards (I, IV, V, VI, VII) 13 sec.

Chromatic Cards (II, III, VIII, IX, X) + 1 repeat 35 sec.

$\frac{F}{R}$  39 F%

$\frac{FK + F + Fc}{R}$  43 %

$\frac{A + Ad}{R}$  43 A%

(H + A) : (Hd + Ad) 10:5

Popular Responses P \_\_\_\_\_

Original Responses O \_\_\_\_\_

$\frac{FC + 2CF + 3C}{2}$  sum C 3.5

M : sum C 1:35

(FM + m) : (Fc + c + C') 6:1

$\frac{\text{Responses to Cards VIII + IX + X}}{R}$  30 %

W : M 15:1

#### II. SUPPLEMENTARY RELATIONSHIPS: Main + $\frac{1}{2}$ Add.

M : FM 1:6

M : (FM + m) 1:6

$\frac{FK + Fc}{F}$  17:10

(Fc + cF + c + C' + C'F + FC') : (FC + CF + C) 15:4

(FK + Fc + Fk) : (K + KF + k + kF + c + cF) 4:6

FC : (CF + C) 1:3

#### III. MANNER OF APPROACH

	Main Responses			No. Add. Scores
	No.	Actual %	Expect. %	
W	15	65	20-30	
D	7	10	45-55	
c	0	0	5-15	
Dd : S	1	4	< 10	

#### IV. ESTIMATE OF INTELLIGENCE LEVEL

Capacity \_\_\_\_\_

Efficiency \_\_\_\_\_

#### V. SUCCESSION

Rigid \_\_\_\_\_

Orderly \_\_\_\_\_

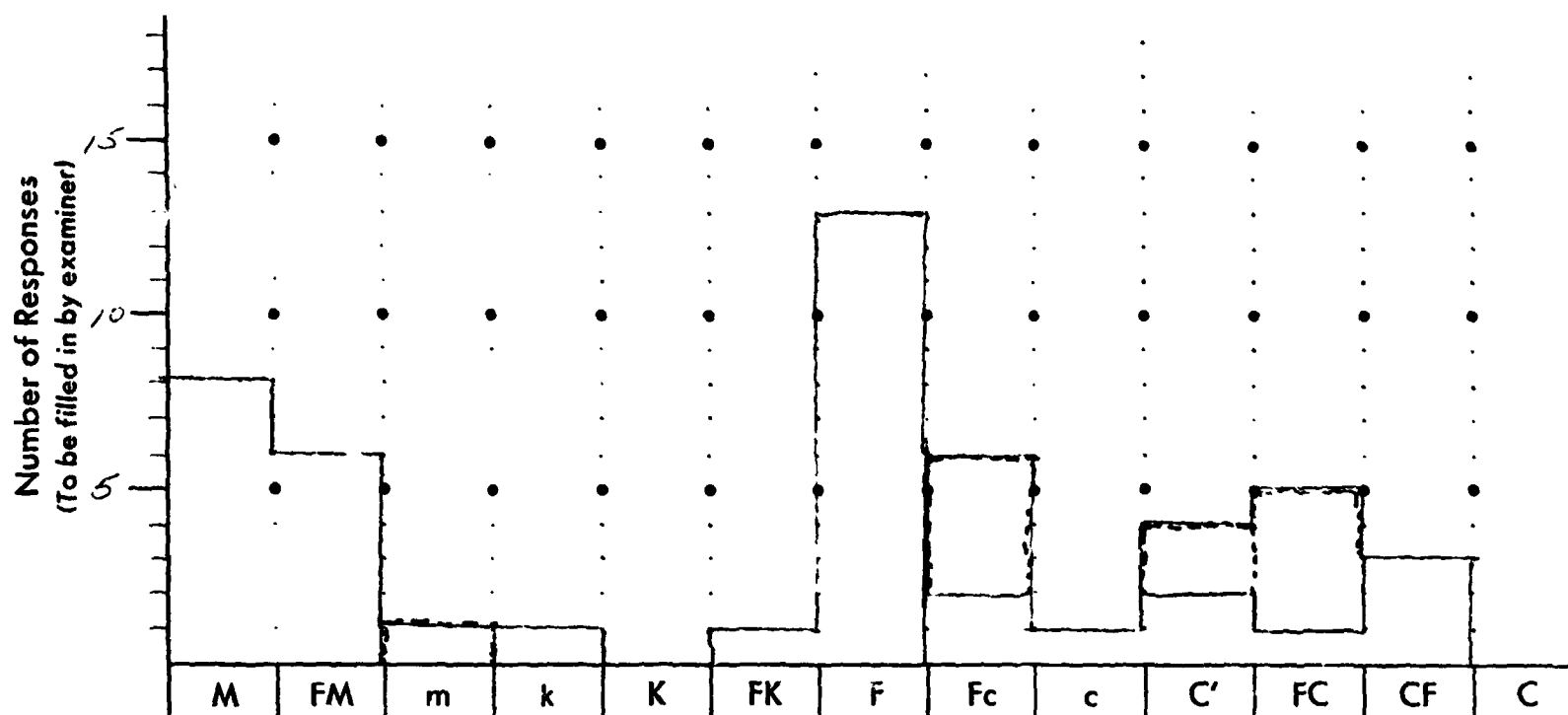
Loose \_\_\_\_\_

Confused \_\_\_\_\_

#### VI. FORM LEVEL SUMMARY

Average Unweighted FLR 2.3 Ach 2.5 C 2.0

Average Weighted FLR 3.5 34 3.0



#### I. BASIC RELATIONSHIPS: Main Responses Only

Total Responses  $R$  36

Total Time  $T$  \_\_\_\_\_ sec.

Average Time per Response  $T/R$  \_\_\_\_\_ sec.

Average Reaction Time:

Achromatic Cards (I, IV, V, VI, VII) 42 sec.

Chromatic Cards (II, III, VIII, IX, X) 1.8 sec.

$\frac{F}{R}$  36 F%

$\frac{FK + F + Fc}{R}$  44 %

$\frac{A + Ad}{R}$  33 A%

$(H + A) : (Hd + Ad)$  18:60

Popular Responses  $P$  \_\_\_\_\_

Original Responses  $O$  \_\_\_\_\_

$\frac{FC + 2CF + 3C}{2}$  sum C 3.5

$M : \text{sum C} - \text{experimenter's balance}$  8:35

$(FM + m) : (Fc + c + C')$  6:5

$\frac{\text{Responses to Cards VIII + IX + X}}{R}$  33 %

$W : M$  14:8

#### II. SUPPLEMENTARY RELATIONSHIPS: Main + $\frac{1}{2}$ Add.

$M : FM$  8:6

$M : (FM + m)$  8:6.5

$\frac{FK + Fc}{F}$  14:90

$(Fc + cF + c + C' + C'F + FC') : (FC + CF + C)$  8:60

$(FK + Fc + Fk) : (K + KF + k + kF + c + cF)$  6:1

$FC : (CF + C)$  3:3

#### III. MANNER OF APPROACH

	Main Responses			No. Add. Scores
	No.	Actual %	Expect. %	
W	14	39	20-30	
D	13	50	45-55	
d	0	0	5-15	
Dd+S	4	11	< 10	

#### IV. ESTIMATE OF INTELLECTUAL LEVEL

Capacity \_\_\_\_\_

Efficiency \_\_\_\_\_

#### V. SUCCESSION

Rigid \_\_\_\_\_

Orderly \_\_\_\_\_

Loose \_\_\_\_\_

Confused \_\_\_\_\_

#### VI. FORM LEVEL SUMMARY

Average Unweighted FLR 2.8 2.7 2.9

Average Weighted FLR 5.2 4.9 5.5